International Center for Research on Women

Women and AIDS Research Program

An HIV/AIDS Prevention Intervention with Female and Male STD Patients in a Peri-Urban Settlement in KwaZulu Natal, South Africa

by

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Project Summary

(Conference Version)

June 1997

Acknowledgments

I would like to thank the HIV Center for Clinical and Behavioral Studies for assisting with the study design; Sutherland Miller (Ph.D) for assisting with the development of the intervention manual; and Zena Stein in her capacity as co-principal investigator. I want to acknowledge the Fogarty International Center, whose funding also contributed towards the study through a Fogarty fellowship. In addition, I also want to acknowledge Eleanor Preston-Whyte in her capacity as co-principal investigator, and the project staff at the University of Natal. Acknowledgment also goes to the KwaZulu Natal Health Department for giving me access to the study clinic, and for the Superintendent-General, R. Green Thompson for advice and the donation of thousands of male condoms. Thanks goes to Wisconsin Pharmacal for their donation of the woman's condom. I want to acknowledge the Goodwin's STD clinic staff. The study would not have been feasible without their cooperation. Last but not least, I want to acknowledge the women and men who participated in this study and shared so much of their intimate life. I dedicate the study to my nephew Kyle G. Magabotha who died in September of 1994.

INTRODUCTION

The sixth national HIV survey of women attending antenatal clinics and public health services in South Africa conducted in 1995 revealed that the national level of HIV infection had increased from 7.75% in 1994 to 10.4% in 1995 (Epidemiological comments, 1996). KwaZulu Natal is the epicenter of the AIDS epidemic in South Africa ; the HIV prevalence in 1995 was 18.2% among women attending antenatal clinics. The lowest HIV prevalence for the country is in Western Cape (1.7%). Data collected monthly on antenatal clinic attendees at a major tertiary hospital in KwaZulu Natal revealed an HIV prevalence of 21.5% by the end of June 1996 (Smith 1996.).

Under the assumption that the HIV prevalence in antenatal clinic attendees reflects prevalence in the reproductive-age female population, these data suggest that prevalence may be even higher in target populations who may be engaging in "risk behavior," such as individuals infected with a sexually transmitted disease (STD). The synergistic relationship between sexually transmitted diseases (STDs), both ulcerative and non-ulcerative, and HIV infection is well-documented (Wasserheit, 1992, Mertons, Hayes & Smith, 1990; Cameron, Plummer & D'Costa, 1988; Pepin, Plummer & Brunham, 1989; Piot & Laga, 1989; Plourde, Plummer & Pepin, 1990; Quinn, Glasser & Cannon, 1988; Simonsen, Cameron & Gakinya, 1988). In KwaZulu Natal, a high incidence of all STDs, especially genital ulcers has been reported (O'Farrel, et al., 1992). Sentinel data reveal an HIV prevalence of 38% among urban STD clinic attendees in this region. Many patients attend STD clinics only after the infection is advanced. This is doubly unfortunate because STDs are one of the most readily modifiable risk factors for the spread of HIV (Grosskurth, et al., 1995). To begin to address STD risk, an intervention was designed and conducted to provide Zulu women and men attending an STD clinic with the knowledge and skills to protect themselves and their loved ones from acquiring and/or transmitting HIV infection.

The research study was undertaken during the period July 1994 through September 1996 at a sexually transmitted diseases (STD) clinic in KwaMashu, KwaZulu Natal, South Africa. The clinic, located approximately 20 kilometers north-west of Durban, the capital city of KwaZulu Natal province, is one of the only two health care facilities in KwaMashu, a predominantly low-income community with high unemployment and plagued by various social ills such as alcohol abuse, crime and political tension.

The specific objectives of this study were the following:

- To collect qualitative data from women and men attending an STD clinic on sexual attitudes and behaviors associated with STD/HIV prevention.
- To develop and test the efficacy of a four-session, small group, cognitive behavioral skills-building intervention, which also included standard STD treatment and condom distribution, in reducing sex risk behavior and STD reinfection among women and men clinic patients.
- To assess the feasibility of the intervention within an STD clinic setting.

METHODOLOGY

The study included both a descriptive/exploratory component to examine the sexual practices of the study population and the context within which risky behavior takes place, and an experimental component to reduce HIV/STD risk that employed random assignment to either a group skills-building intervention or a control condition. The study was comprised of four phases characterized by interrelated activities: 1) the formative research phase, which included in-depth interviews and focus groups with STD clinic patients and a focus group with clinic staff; 2) development of the questionnaire and intervention manual guided by findings from the formative research phase; 3) the experimental phase (described below); and 4) process evaluations throughout the implementation of the intervention program. For methodological reasons, the patients who participated in the formative phase of the project were not eligible for participation in the experimental phase.

The following methodological processes guided the formative and experimental phases of the study:

- The formative research process involved conducting in-depth interviews and focus groups with 30 STD patients and 10 clinic staff. Nonprobability sampling methods were used to obtain the sample of 15 female and 15 male STD patients. Data were collected using standardized, open-ended, in-depth interview schedules and an interview guide for the focus groups. The in-depth interviews and focus groups were aimed at obtaining qualitative data on critical issues in HIV/AIDS and STD prevention among STD patients by exploring existing patterns of communication on safer sex and HIV/AIDS including other STDs, sexual behaviors, norms, and relationships. A focus group also was conducted with clinic staff on HIV/AIDS and STD prevention. Interview and group responses were tape recorded, transcribed and translated into English. These data collection methods informed and guided the development of the survey instrument and the design of the intervention.

- The intervention trial included a sample of 102 women between the ages of 18 and 35 and 100 men between the ages of 18 and 40, all living in KwaMashu. All patients recruited into the study had unknown HIV status but all had an STD diagnosis at baseline. The experimental intervention consisted of four sessions of a cognitive behavioral skills-building group intervention in addition to the standard STD clinic treatment (SCIT).[1] The control intervention consisted of only one group session on HIV/AIDS information in addition to the clinic's standard STD treatment (HIT). Each group was made up of 10 women or 10 men, yielding a total of five female SCIT groups, five male SCIT groups, five female HIT groups and five male HIT groups. The quantitative analysis tested several

[1] SCIT stands for social-cognitive intervention trial and is the acronym used for the experimental group throughout this report. HIT stands for HIV/AIDS information treatment and is used for the control group.

hypotheses regarding the reduction of sex risk behavior and STD reinfection in the experimental and control conditions.

Components of the Intervention Trial

Recruitment and Study Participation

Women and men were informed of the study by clinic staff during their pre-treatment community meeting in the morning and were invited to participate in the study. After being seen by the clinic staff, patients who volunteered to be in the study were individually interviewed for approximately 5 minutes to determine whether they met the criteria for inclusion in the study. Study criteria included age (women between the ages of 18 and 35 years, and men between the ages 18 and 40 years); first-time clinic attendance; having been diagnosed with symptoms for syndromic STD management;[2] and having been sexually active in the three months prior to study enrollment. If they met the study criteria and agreed to be involved in the study, they were read an informed consent form that they signed if they agreed to the contents. A baseline questionnaire was administered to the enrolled patients by a trained interviewer on the same day. Patients were randomly assigned to either the treatment (SCIT) or control (HIT) group and attended their first (or only) group session on the same day.

The Interviews

Asking women about very intimate sexual behavior is taboo in most cultures, and even in those cultures where it is not, discussing such very private behavior with a stranger is extremely difficult. In Zulu culture, women do not generally discuss sexuality, and while they may do so with their women friends, they would be much less likely to do so with a stranger. Many research scientists within South Africa who have needed the answers to sexual risk behavior have chosen to either ask less intimate, “safe” questions or kept away from this area for fear of offending the women involved or worse, appearing to be culturally insensitive. Great care was taken in this study with recruiting, preparing and training the interviewers for this section of the interview.

All the interviewers were women of Zulu ethnicity who spoke Zulu fluently. Most interviewers had a degree either in Social Work or Psychology, and a few had degrees in related fields. Those with degrees in related fields had experience with interviewing

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[2] In syndromic management, the clinician bases diagnosis and treatment not on specific diseases identified through testing but rather on syndromes, which are groups of clinical findings and patient symptoms. Treatment is then offered for all diseases that could cause that syndrome. For example, a patient presenting with urethral discharge, is treated for all diseases prevalent in the region that could cause discharge - usually gonorrhea and chlamydial infection. Since all possible treatments are offered, the likelihood of a cure for the STD causing the discharge is greatly enhanced.

and/or had worked in the health field. Training involved first finding out from the interviewers themselves how they felt about conducting an interview which explored sex risk behavior. Some, specifically those who were married, felt uncomfortable about the words that were used in the interview to describe the genital organs. The use of standard words such as vagina, clitoris, penis, or anus were considered vulgar words by these women, and as such, not used by "good women" or "respectable women." They felt that the use of such words would denigrate not only the woman uttering them, but would imply that they, the interviewers, were making negative assumptions about the interviewees. They stated that the use of these words was associated with "prostitutes" and women of low morals. Other interviewers, however, notably some of the older women, approached the questions from a very pragmatic view. They felt that in order to obtain the information that was needed, and help the patients in the study reduce their risk of HIV/STD infection, one had to step back from the restrictions of culture and simply approach the topic from the point of view that HIV/AIDS is a deadly illness and that asking such questions could enhance the prevention of infection. These interviewers, whose views were later shared by the initially resistant interviewers, suggested that each of the interviews begin with a preamble outlining the interviewers high regard for the cultural domain within which sex and sexual behavior is discussed. This could be followed by a detailed explanation of what the interviewer needed to do, and that certain terminology would be used to describe different types of sex and sexual behavior. Also included in the discussion would be an explanation that by using these terms, the interviewer was not making any moral judgment of the interviewee's behavior. Interviewees were reassured that they could use the terms with which they were comfortable. Prior to starting each interview, the interviewer compiled a list of sex-related terminology used by the interviewee to ensure that they would be talking about the same thing.

Participants in both the experimental and control groups were interviewed at baseline, at post-intervention four weeks later, and again three months post intervention.[3] Data were collected on demographics; substance use; perceived susceptibility to HIV infection, knowledge regarding HIV/STD transmission; HIV testing; sexual risk behavior; physical, sexual and emotional abuse; pregnancy, STD and contraceptive histories; and determinants of behavior change including behavioral intention, social norms, self-image, perceived outcomes, and self-efficacy . All interviews were conducted in Zulu by trained Zulu speaking interviewers who were blind to participants' group assignment.

The Sexual Risk Behavior Assessment Schedule (SERBAS) was used to measure the major outcome of interest -- the number of unprotected oral, vaginal and anal sex contacts.[4] Women were asked about sex contacts with their male partners. Men were asked about sex contacts with women partners and with men partners. Questions included: 1) number of sexual partners; 2) types of sexual partners; 3) number of unprotected oral, vaginal and anal sex contacts; 4) number of times male condoms

[3] This report does not include information on the three month post-intervention interviews.

[4] "Unprotected" here refers sexual intercourse unprotected by a male condom.

were used during oral, vaginal and anal sex contacts; and 5) types of financial exchanges that occurred for different types of sex contacts.

In order to quantify the risk of sexual transmission of HIV, taking into account both the number and type of unprotected sexual episodes, the Vaginal Episode Equivalent score for unprotected sex (VEE) was used. The VEE index quantifies the risk of sexual transmission of HIV taking into account both the number and type of unprotected sexual episodes. Each unprotected vaginal episode is given a risk score of 1. Each unprotected episode of anal and oral sex is given a score weighted according to its risk of transmission relative to an episode of vaginal sex. One episode of oral sex is given a score of one-tenth of a point -- that is, it is weighted one-tenth of a vaginal episode. One episode of anal sex is given a score of 2 points -- that is, it is given a weight of two times a vaginal episode. For each person, all the points are added to calculate the total VEE score. The HIV Transmission Risk Index is a measure of sexual transmission of HIV, and makes the assumption that risk of anal sex > vaginal > oral.[5]

The baseline interviews lasted 60 minutes, and patients were willing to both sit through this interview and wait for the first group session conducted on the day of recruitment. Incentives to keep them at the clinic included pies and drinks before and during the group session and a participation fee to pay their return bus/taxi fare. At post-intervention, patients first attended a group session for 90 minutes in the morning. The group session was followed by the administration of a post-intervention questionnaire for 50 minutes and finally an STD evaluation by the clinic nurse. Patients were willing to wait and cooperated admirably throughout the process. The incentive paid to participants was increased for each questionnaire completed, and an AIDS Prevention Intervention Attendance Certificate was given to the research participants in both the experimental and control groups at the three-month follow-up interview.

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[5] The experimental intervention was designed to reduce the frequency of unprotected anal and vaginal sex. A simple count of the number of episodes of unprotected anal and vaginal sex would not take into account, however, the well established hierarchy in the risk of transmission for anal and vaginal sex. Studies (The AIDS Institute, 1994; DeVincenzi, 1994; Padian, et al., 1987; Voeller, 1991; Samuel, et al., 1994) have consistently demonstrated that anal sex carries at least a two-fold higher risk than vaginal sex. Nor does this outcome allow for the potential contribution of unprotected oral sex. While oral sex is much less hazardous, it may nonetheless carry some risk of transmission, as indicated in some studies (Samuel et al., 1994; Baba & Trichel, 1996; Schacker, et al., 1996). A reduction in anal and vaginal sex could potentially be offset by an increase in oral sex.

In choosing a summary indicator of these several types of risk, this trial, like other trials of HIV preventive interventions, was faced with a dilemma. As indicated (DeVincenzi, 1994; Padian, Shiboski & Jewell, 1990, Susser, Desvarieux & Wittowski, in press; Desvarieux,et al., 1996), a simple count of all unprotected episodes of any type is a poor indicator of risk. No weighting scheme has yet been validated, standardized and widely accepted. The present study used a weighting scheme termed the Vaginal Episode Equivalent (VEE) sexual risk index (Susser et al., in press; Desvarieux et al., 1996).

The Intervention Sessions

All sessions in both the experimental and the control groups were guided by a standardized manual and incorporated HIV/AIDS and STD information. The sessions for the experimental group were theory-based and grounded in various theoretical models such as the social cognitive learning theory, the health belief model, the theory of reasoned action, the theory of self-regulation and self-control, and the theory of subjective culture and interpersonal relations (Fishbein, et al., 1991). Based on these models, it was assumed that for the workshop to be successful specific behaviors had to be targeted. The skills-building sessions included the following elements:

- A facilitated series of four, weekly 90 minute sessions within the STD clinic setting.
- Cognitive and behavioral skills to enable patients to avoid contracting or transmitting another STD, including HIV.
- A general approach that minimized reading and listening to presentations, while emphasizing modeling, role play, guided practice, group discussion and problem-solving.
- A combination of printed materials and group discussion that provide for reinforcement of positive behaviors.
- An attempt to create a supportive, non-threatening environment in which information discussed during group sessions was treated as confidential.
- Use of strategies that could be adopted by primary health care facilities.

Sessions were designed to "stand alone" so that participants benefited even if they did not attend the entire series. To increase the value and candor of discussions, leaders assured participants of confidentiality and reminded them about data security provisions. All group sessions were conducted in Zulu and all handouts and scripts were translated into Zulu. Attention to attrition from the study groups began at baseline. Intervention participants were asked to give their current address as well as names and telephone numbers of two other people most likely to know of their whereabouts. Between the baseline questionnaire, group sessions, and post-intervention questionnaire, the addresses and telephone numbers were checked and confirmed. Participants were also encouraged to phone or visit the clinic and update locator information. Trackers, recruited from the study participants, visited participants between interviews to remind them of the next one.

Skills were taught and obstacles confronted in each of the experimental sessions, including practice with "make-believe" partners. The modalities for implementing the intervention included discussion, participant-generated vignettes, modeling by group leaders, rehearsal and role-play by group participants, coaching and guided feedback, and goal-setting and practice between group sessions. The intervention materials included flip charts, posters, stimulus scripts, condoms (male and female), and the patentex oval -- a vaginal, foaming, contraceptive suppository with a low dose

nonoxynol-9 (75mg)[6], and penis and pelvic models. The session format included a review of the previous session; a review of between-session goals and practice before beginning the current session content; an introduction of the new topics; an exploration of attitudes and barriers; an explanation of the exercises; facilitator modeling of the skill to be taught; group practice of the skill; summarization of the content covered; review of the topic to be covered in the next session; and goal setting and administrative issues.

Separate manuals were developed for the women and men and each of the four sessions of the manuals addressed specific questions. The first three group sessions were single-sex, and the fourth session was co-ed. The manual for the women included the following three sessions: 1) What methods will I use to protect myself from STD/HIV infection? 2) How do I ask my partner to use protection? and 3) How can my partner and I protect ourselves and still have a baby if we want one? The manual for the men included the following three sessions: 1) What methods will my partner and I use to protect ourselves from STD/HIV infection? 2) How do I deal with anger

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[6] Various clinical studies support (Louv, et al., 1988; Cates & Stone, 1992; Zekeng, et al., 1993; Niruthisard, Roddy & Chutivongse, 1992) the protective role of nonoxynol-9 against serious STDs including chlamydial and gonococcal cervicitis and their long-term sequelae, such as pelvic inflammatory disease and ectopic pregnancy. Users are also protected from cervical neoplasia risk, linked to sexual transmission of human papillomavirus, and the risk of acquiring trichomoniasis. A decreased risk for HIV transmission would be expected on the basis of protection against STDs that cause genital ulcers and cervicitis, and on the basis of laboratory evidence that nonoxynol-9 is an effective virucide against HIV in vitro. On the other hand, using barrier methods or spermicide increases a woman's risk for several common genital tract problems, including urinary tract infection, candidiasis and bacterial vaginosis and for toxic shock syndrome.

Clinical research results are, however, still contradictory regarding the effects of spermicides containing nonoxynol-9 on the prevention of HIV transmission (Bird, 1991; Cates, et al., 1992; Gollub & Stein, 1992; Stein, 1992; Voeller, 1992). With concentrated or extended exposure to nonoxynol-9, visible evidence of local tissue disruption, including ulceration, has been reported (Niruthisard, Roddy, & Chutivongse, 1991; Reckart, 1992). This direct effect of nonoxynol-9 on vaginal epithelium has led some researchers to suggest that the dose and frequency or duration of exposure to nonoxynol-9 may determine the outcome of vaginal barrier use impact on HIV infection risk.

Given the continuing research debate regarding the use of spermicides, the use of the Patentex Oval was presented to the women in the study as the last alternative in a hierarchy of protection methods, if they were not able to negotiate either male or female condom use with their sexual partner(s). The first hierarchy recommended the use of the male condom. The second hierarchy recommended the use of the female condom if the male sex partner refused to use the male condom. The third hierarchy recommended the use of the oval rather than using nothing and having unprotected sex.

when my partner refuses unprotected sex? and 3) How can my partner and I protect ourselves and still have a baby if we want one? Session 4 addressed the question "How do we problem-solve risky sexual situations including violence/negative reaction from a sexual partner?"

All the group leaders were also of Zulu ethnicity and had at least a bachelor's degree either in Social Work, Psychology or Industrial Relations. Group leaders were of the same gender as group participants. The fourth group session was facilitated by both a male and female group leader. Group leaders were initially trained in a brief series of training-of-trainer sessions. Those leaders judged as capable were randomly assigned to either the skills-building or control groups, and then completed the balance of their training. Leaders were kept specific to groups to prevent contamination or spill-over where a group facilitator from the experimental group might influence the control group with skills taught in the experimental intervention. Group leaders were regularly trained, monitored and debriefed throughout the project. Leaders who evidenced deficits in skills, attention to the manual, or overall performance received extra help. Weekly pre- and post-session supervision was conducted with group leaders to ensure that they were prepared for their group sessions, and to obtain feedback on difficulties they may have experienced. Monthly group supervision was also conducted with leaders to discuss common problems and concerns. Clinic staff were not eligible to serve as group leaders in order to reduce confounding factors and conflicts of interest. They have, however, expressed an interest in conducting similar groups and will be offered training after the study is completed.

Process measures such as group leader evaluations and group session attendance registers were maintained on a weekly basis. Whenever a patient recorded their attendance, they also recorded their address and contact phone number. In this way, we were able to trace patients who might have moved since the administration of the baseline interview.

In HIT, women participants were exposed to one session on HIV/AIDS and STD information only. They were given information about the male condom, the female condom and the patentex oval, but were not instructed or trained in the use of these protection methods. All female participants in both SCIT and HIT were given all three protection methods at the end of the first session. SCIT participants continued to receive all three methods at the end of every session.

Male participants in HIT were exposed to a similar session on HIV/AIDS and STD information as female HIT participants. They were not trained in the use of any of the methods. All male participants in SCIT and HIT were given male condoms at the end of the session. SCIT participants continued to receive condoms throughout the intervention sessions.

The control participants were also monitored in an effort to reduce differential attrition and counter the tendency of participants to drift away and be "lost" when they have no

regular contact with project staff. At designated intervals, tracking staff informed control participants of questionnaire dates and reminded them of the compensation, thus reducing the likelihood of greater attrition from controls who were less attached to the project.

RESULTS OF THE FORMATIVE RESEARCH

We found that while women were initially reticent in groups to talk about intimate sexual behavior or terminology used for different types of sex, they spoke about these issues quite freely in the interviews. Men were more open in both the interviews and in the focus group discussions. Analysis revealed that women were generally able to initiate discussions on HIV/AIDS and to communicate their concerns about HIV infection to their partners. However, they did not initiate discussions about safer sex or tell their sexual partners to use condoms. Doing so was considered culturally inappropriate; it would bring their own sexual behavior into question. As stated by one of the women interviewed, "Zulu women do not tell their sexual partners what to do." Another stated that "women who ask their partners to wear condoms are loose women," and such a request would predispose the woman to a violent reaction from her male partner, as another stated "if I just about mention the word condom, he will hit me."

Knowledge about HIV/AIDS and transmission risk was generally high, but this knowledge did not translate to protective behavior. Only 9 participants out of 30 (six men and three women) had ever used condoms. None of the participants were currently using condoms at the time the interviews were conducted.

The desire to have children was reported as the principal barrier to using condoms by both women and men. Reduced sexual pleasure was also reported as a barrier. In addition, one man reported that while he wanted to protect himself and his partner, the use of condoms created tension with his cultural beliefs. He believed that sperm linked him with his ancestors, and that throwing away or burning a condom containing his ejaculate meant a break in his link with his ancestors.

The majority of women reported having only one main sexual partner, and most men reported having both a main and a casual sexual partner concurrently. Women regarded condom use as a strategy for preventing HIV infection, while men regarded reduction in partners as an effective strategy.

Clear definitions exist on what is regarded as acceptable and non-acceptable sexual behavior, with some non-acceptable sexual practices being sanctioned in specific circumstances. The main sexual practice reported was vaginal intercourse. Anal intercourse was described as inappropriate in a heterosexual relationship. Most participants regarded this as a practice confined to men who have sex with men. Male participants denied having sex with other men but mentioned that this practice did occur in prisons and single sex hostels of migrant workers. Masturbation in general was

regarded as a practice for "those who are mad" and as inappropriate for both men and women. It was only sanctioned for men specifically in unique circumstances such as incarceration or migrant labor.

Terminology used to describe different types of sexual partners included *owokuqina* (the firm one) or "straight" for the main sexual partner, *ikhwapha* (someone you keep under your arm) for the casual sexual partner, and *isiqeda* (frozen drink that quenches thirst) for a one-time sex relationship. Sexual relationships in which money is exchanged exist but are somewhat different from the commercial sex-in-exchange-for-money relationship reported in the literature. Many men reported that they gave their “straight” money on a regular basis as a contribution toward the household needs as well as for her personal use. The money was not given in exchange after a sexual episode but would be given regularly, and particularly on "pay day."

In both the in-depth interviews and the focus groups it was reported that men considered "steady" partners to be women who were "well-behaved." By this they meant that these women did not sleep around, they listened to their male sexual partner, they did not question his sexual behavior, they took care of him, and were the type of women that men would marry. Within a steady relationship, the suggestion of condom use by either partner would mean that this behavior was brought into question. If a woman suggested that her partner use a male condom, or if she informed him of her intention to use a female condom, he would believe that she had other sexual partners. Women feared being physically assaulted and even abandoned if their fidelity were questioned. If a male partner used a condom or informed his partner that he intended to use a condom, she would feel that he did not trust that she is "well-behaved". Men feared offending and hurting their sexual partners. With a main sexual partner, because men expected women to be "well-behaved," introducing condoms would mean doubting the women’s behavior. The issue of trust and fidelity was not expressed by women as a deterrent to condom use since it seemed to be accepted that men had more than one sexual partner, even if in a steady relationship.

While women feared rejection and violence from their main sexual partners if they introduced condom use, they nonetheless said they would be more likely to introduce condom use within a steady relationship rather than within a casual one. The women said they would feel safer discussing the use of and asking their main sexual partners to use condoms because they could more accurately appraise the risk of a violent reaction with a main sexual partner than with a casual sexual partner whom they did not know well. Violence was a given in women's attempts to assert themselves and protect themselves from sexually transmitted infections whether in a steady or casual sexual relationships. They had a choice between two alternatives: a violent reaction of unknown intensity from a casual sexual partner and the possibility of a violent reaction of known intensity from a main sexual partner.

Men reported being more likely to use condoms with casual sexual partners. They reported that in these relationships they did not need to communicate their intention to

use them, they simply did. Reluctance to use condoms was described as wanting "to have my sweet without the wrapping on it." Despite having numerous sexual partners, men did not perceive themselves to be at risk for HIV infection. Nonetheless, some used traditional remedies that they believed protected them from HIV infection.

RESULTS FROM THE INTERVENTION SESSIONS

- **The Women-Only Sessions**

Session 1: Group leaders reported that the women were initially bashful about the use of standard words used to describe the genitalia and sexual behavior. As the group session progressed and participants became immersed in the session content, that reserve thawed and they were able to discuss issues that concerned them and even laugh about things that embarrassed them. They responded well to the stories used in the session to link the training content to their own personal experiences. They also preferred to remain in the larger group to discuss issues rather than break up into pairs or small groups. Large group gatherings are part of the oral tradition of story-telling within African culture, and this aspect may have impacted on the groups' comfort level with large rather than small group discussions. The larger group did not inhibit participants from sharing their personal stories. Although hesitant at first, eventually they volunteered freely to read the scripts and enjoyed the role-plays. They enjoyed the "Dear Thandi" letters, which were used to elicit responses about deciding on which protective method to use for the prevention of STD/HIV. The "Dear Thandi" letters are advice columns in popular magazines that discuss emotional problems.

The discussion, modeling and practice on the use of the male condom raised many issues. The women generally knew how a condom was put onto a penis, but stated that their sexual partners would not let them do it, that they "would not be allowed to touch his private part." The use of the term "private part" encapsulated the dynamics regarding touching the genitalia. Obviously communication would have to be an important aspect if women were to play a role in the use of condoms.

Women were fascinated with the female condom. Some had heard about the condom, but few had seen it. The majority, however, had neither heard of nor seen it. There was initially lots of laughter and questions as condoms were passed around to participants. They listened intently during the discussion on how the condom was inserted into the vagina. Knowledge regarding female reproductive anatomy was very limited and many expressed amazement when shown the model. They stated that the information helped them understand "why condoms would not get lost up inside." They did not express any reservations about inserting the condoms and touching their own genitalia. Many were unsure whether the inner ring would get correctly in place around the cervix. They all said they would try inserting the condom at home.

They also expressed much interest in the patentex oval. They referred to it as "a pill" and thought that its easy insertion would facilitate its use.

The issue of informing a sexual partner about the intention to use and the actual use of protection methods was discussed. In general they preferred to discuss use of protection methods. They feared being beaten up if their partner found out that they were using one surreptitiously. Some, however, stated that a clandestine method was

one of the only ways of protecting themselves since their partners refused to use condoms. The issue of vaginal wetness was discussed and while some expressed concern that their partners would think they were sleeping around, they did not make a big issue about vaginal dryness and "tight sex." At the end of the group session, when protection methods were given out, women eagerly took all three methods.

Session 2: There were many questions at the beginning of the second session. Most women had tried to insert the female condom and had numerous questions particularly about holding the inner ring during insertion, and how to ascertain whether the ring was around the cervix. Some had successfully inserted the condom and had discussed its use with their sexual partners. Some sexual partners had agreed to its use, and in these cases reports about partners' comfort with the condom varied. Some stated that their partners liked using the female condom, while others said that it made a noise and that their partners did not like it. Some stated that they had been beaten up by their partner for even suggesting its use.[7] The response to the oval was one of general excitement. Almost all the women had tried it, and responses ranged from "it made me feel clean," "it cleaned me out and we had better sex," "it made me nice and tight and sex was better," to "my boyfriend asked me why I was wet, and I said I had just peed before we had sex." Many had used the oval surreptitiously and stated that they did so because they feared their partner would reject its use and they would not even have had the opportunity of trying it out.

The second session dealt with feelings about asking partners to use protection. This topic engendered much discussion and tied in with the experiences of those women who had tried using a protection method between sessions. Many feared asking a partner to use protection because of the possibility of an angry or violent reaction. Cultural issues regarding gender specific behavior in sexual relations were also raised. Culturally women are not supposed to talk to men about sexuality, and women who do so are regarded as sexually promiscuous. Participants responded positively, however, to practicing and role-playing on how to ask their male partners to accept using a male or female condom.

Session 3: In the review of between-session goals, women in general were more positive about their experiences with inserting the female condom than they had been after the first session. In addition, they liked using the patentex oval and had questions about its use in relation to the session topic which dealt with protection and having a baby. The discussion on the physiological effects of some STDs came as a surprise to some women. While their general knowledge about HIV/AIDS seemed high, they knew less about other sexually transmitted diseases, particularly that some cause infertility or harm to the fetus. Less was known about asymptomatic STDs. There was general agreement that sexual partners should be tested for HIV before deciding to have a baby. They were not so sure whether condom use or the practice of *ukusoma* (sex between the thighs or "outersex") would work while waiting for the test results, since

[7] Project staff were trained to offer counseling, information and referrals to women who were victims of violence.

partner cooperation would be a central issue. Many of the women thought that *ukusoma* was outdated, and since they were sexually active it would be difficult to have non-penetrative sex. In general, this was a more somber session for the women than the others sessions had been.

The Men-Only Sessions

Session 1: One of the common themes emerging from the reports of group leaders conducting SCIT groups was that the men generally seemed to know how to put a male condom onto the penis model, but were particularly interested in the female condom and the way in which it was inserted. They were also very keen on understanding female reproductive anatomy. Many of them mentioned that they previously had no idea what female anatomy looked like, and some had feared using male condoms because they thought that if it slipped off, it would "get lost" up inside of the woman and harm her, possibly even cause her death. Being informed about and having a visual presentation of female anatomy, and seeing how the female condom was inserted, reassured them of the safety of both the female and the male condom. They were fascinated by the female condom and many expressed an interest in having their sexual partners use it. Some stated that they liked the female condom more than the male condom; as one participant said "it is bigger and will not hold the *indugu* (penis)." Some wanted to take a female condom home and have their sexual partner try it. They were also fascinated by the patentex oval and did not raise much objection to its use by their sexual partners. The issue of vaginal wetness did not become a focus of attention nor the need for "dry" sex. Some also wanted to take the oval home to have their sexual partner use it. After every group session, male condoms were handed out. Often, many requested the female condom and the patentex oval as well, although they were not distributed at the men's sessions. Before this session group leaders had been concerned about the participants' endurance levels. However, the men were willing to sit through the entire session. All sessions started out with stories that connected the meaning of the session content to their personal experiences. The men enjoyed the stories and eagerly volunteered to read them and play the roles outlined. Group feedback was also lively, and often discussions had to be curtailed in the interest of completing the session. Group members were comfortable using standard words to describe the genitalia.

Session 2: The men became animated over the issue of anger when their partner refused unprotected sex. They were very articulate about women's rights and generally agreed that women have a right to refuse unprotected sex, but stated that a woman was more likely to get an angry response if she waited until the man was aroused and on the point of having intercourse before informing him that she would not have unprotected sex. It appeared that it was the timing rather than the refusal itself that angered them. Most of the men could relate to the stories about angry responses to partners refusing unprotected sex, and many had stories of their own. The men in general enjoyed the large group discussions more than splitting up into pairs or small groups to discuss topics engendered by the group session.

Session 3: During this session, participants filled out a personal risk form. Written exercises were, overall, kept to a minimum out of regard for those who could not read or write. Participants completed this form without hesitation and comprehensively. Generally, male participants felt it was important for a man and his sexual partner to be tested for HIV if they were considering whether to have a baby. The issue of HIV testing did not seem to scare them. The discussion about *ukusoma* raised lively debate about the possibility of returning to what they regarded as an outdated practice. They agreed that this practice served its purpose in traditional Zulu custom, when it was used to prevent pregnancy, not necessarily to preserve virginity. Since there is now an array of contraceptives on the market, this custom has fallen into disuse. They regarded it as a practice to be reconsidered for the prevention of STD/HIV transmission, but felt that it would be difficult to resurrect its popularity since "they had tasted the real thing."

Female/Male Combined Session

Session 4: This session engendered much excitement for both the women and men, and attendance was generally higher than for the other sessions . While there was playful banter between the men and women, this did not derail their focus and attention once group sessions began. Both men and women participants took the session very seriously. The women passionately expressed their pain and anger about situations in which they were physically abused after requesting their partners to use a male condom. The men somberly recalled their own personal stories in which they had beaten up or had been verbally abusive to a sexual partner who asked them to use a condom. Lively discussion, interjected with rebuttals from both sides, highlighted the reasons men became angry and abusive when women asked them to use condoms, and how women felt about asking their partners to use condoms, including the painful consequences some had had to deal with. The women in general were assertive and vocal. One group leader stated that "the men in our group were scared of the women" and that "one woman actually stood up and was attacking the men, and they actually listened." This group session involved three role-plays in which gender roles were reversed in an abusive situation. The men took their reversed roles seriously and in the words of one group leader "they were real situations, and the men were feeling it." In one of the role-plays men, in their roles as women, talked to their partners about how they felt about being beaten up. One group leader stated that "there was silence in the group; the men showed feeling; they were not laughing at the women." Routinely, when this last group session ended there was applause. Participants stated that the combined group sessions were good because the discussions enabled them to hear each other's viewpoints. This last session generally lasted beyond the time allocated. Participants did not seem keen to leave and remained to talk informally to the group leaders and to each other. Group leaders usually came back from these sessions animated and feeling good about their contribution to the study.

Discussion

Session attendance overall was good and increased over the life of the project. Participants seemed to have gained trust in the staff and the intentions of the project personnel and therefore seemed more likely to attend group sessions. Some gender differences were observed in session attendance: Women attended sessions more regularly than men. People particularly enjoyed the combined group sessions: the women came across more assertively than expected and more men attended it than the previous male-only sessions.

The study indicates that not only is a four-session cognitive behavioral skills-building intervention feasible, but also that the demand for this type of intervention grew as the project progressed. Participants returned for group sessions; they responded well to the group medium of acquiring new skills; they interacted with each other and were willing to read scripts and participate in role-plays and they enjoyed the story-telling medium of introducing new group session topics. The STD clinic staff were also caught up in the excitement engendered by the intervention. Many often asked about the content of the sessions and expressed interest in conducting the intervention themselves.

RESULTS OF THE INTERVENTION RESEARCH

Data Analysis

The data were first analyzed for comparison of baseline demographics between SCIT and HIT to determine that the groups were similar to begin with and to assess whether any of the background variables might influence the outcome variable -- unprotected sex. If the two groups (SCIT and HIT) were found to be different with respect to any variables that may have influenced the outcome variable, these variables were controlled for when evaluating the effect of the intervention. All analyses were done separately for men and women.

Second, the intervention was evaluated separately for women and men in SCIT and HIT using the Vaginal Equivalent Episode (VEE) score (as described previously). The average VEE score was computed for each group at baseline and at post intervention. The hypotheses were initially tested assuming that the VEE scores for the SCIT and HIT group population were normally distributed with the same variance. The 95% confidence interval was calculated, also based on the same assumption. A t-test was conducted at post intervention to test the null hypothesis that the mean VEE score was the same for SCIT and HIT versus the alternate hypothesis that the mean VEE score was different for the two groups. In addition, since the VEE distribution was found to be positively skewed, a non-parametric approach was also used. The "bootstrap"

procedure was used to compute the 95% confidence interval for the difference between the means of the two groups (SCIT-HIT).[8]

Third, the analysis sought to identify other specific behaviors that were affected by the intervention. These included the use of barrier methods such as the male and female condom and the patentex oval, communication with sexual partners about condom use, assertiveness, type and number of sexual partners, perceived susceptibility to HIV infection, HIV/STD knowledge, HIV testing, physical abuse, STD history, and contraceptive use.

Fourth, a logistic regression analysis was conducted with "high post intervention VEE score" as the dependent variable and the following categorical variables as covariates: age (<25 and >=25 years); number of children (0 and >0); alcohol user (yes, no) and feeling at risk for HIV infection (yes, no). The "high post intervention VEE score" was obtained by dividing the VEE score into two categories: high and low. A VEE score of more than or equal to 15 was considered high. This figure was obtained from the median VEE score of HIT.

Finally, multiple regression analyses were conducted separately for women and men with the VEE score at post intervention as the dependent variable and group, age, number of children, marital status, STD diagnosed, alcohol use, sex partner's education, and perception of HIV risk as the independent variables.

The baseline data included information on the three months prior to the baseline interview, whereas the post-intervention data consisted of information on the four weeks during which the intervention sessions were conducted. The baseline and post-intervention data are, therefore, not directly comparable. Post-intervention data were not available for 21% of the women and 30% of the men participants. This attrition subsequently restricted any pair-wise comparison of baseline and post-intervention data.

Baseline and Post Intervention

At baseline, data were collected on 102 women -- 51 in the experimental condition (SCIT) and 51 in the control condition (HIT). At post-intervention data were collected on 81 women -- 47 (92%) for SCIT and 34 (67%) for HIT. Data were collected on 100 men at baseline - 50 in SCIT and 50 in HIT. At post-intervention, data were collected

[8] The bootstrap method includes the drawing of random samples with replacement one thousand times from the observed values. Each of the 1000 bootstrap samples consisted of drawing 51 an 50 points, for the women and men respectively, with replacement from the original data points in the experimental and control conditions; the corresponding replication being the correlation coefficient of the resampled points. The bootstrap method obtains a 95% confidence interval for non-normal distributions.

on 70 men - 36 (72%) in SCIT and 34 (68%) in HIT. Attrition at post-intervention was greater in HIT for both women and men participants.

Demographic Characteristics

Demographic variables for the women's and men's experimental (SCIT) and control (HIT) groups were compared using Chi-squares. Data presented in Table 1a revealed that at baseline, participants in the two conditions were similar for all the relevant variables.

As the table shows, more than half the female participants were 25 years or older. The vast majority had more than a primary school education, were in long term sexual relationships but were not married , and had one or more children. While some were employed, a sizable proportion were either unemployed or still attending school. Residential mobility was fairly low among participants. More than a third had lived at the same address for 20 years or more.
Although the majority of the women in the study at baseline had more than primary schooling, their high unemployment and low wages still made them economically dependent on their sexual partners.

Data presented in Table 1b revealed that at baseline, male participants in the two groups also were similar for most of the variables.

The few variables in the men's data that were dissimilar at baseline were found not to have influenced the study outcomes in any meaningful way when controlled for. Randomization of participants therefore had the desired effect, i.e., to make the groups being compared as equal as possible at baseline. Multiple regression analyses controlling for the confounding effect of age, education of sexual partner and HIV susceptibility among men in SCIT showed no significant influence of these variables on the outcomes of interest. The reduction in HIV infection risk behavior at post intervention for women and men SCIT can therefore be inferred to be as a result of the intervention and not some extraneous variables.

Table 1a.
Demographic Characteristics of Women Participants

		Treatment (N=51) N (%)	Control (N=51) N (%)	Chi-square, d.f, P-value
Age	< 25 yrs.	22 (43)	23 (45)	.04, 1, .84
	>= 25 yrs.	28 (55)	27 (53)	
	missing	1 (2)	1 (2)	
Education	<= Primary	9 (18)	12 (24)	.54, 1, .46
	> Primary	41 (80)	38 (75)	
	missing	1 (2)	1 (2)	
Length of current partnership	<=5 (Long term)	39 (76)	40 (78)	0, 1, .96
	Other	10 (20)	10 (20)	
	missing	2 (4)	1 (2)	
Married	Yes	6 (12)	5 (10)	.08, 1, .78
	No	45 (88)	45 (88)	
	missing	0	1 (2)	
Children	0	12 (24)	16 (31)	1.05, 1, .31
	>= 1	38 (75)	32 (63)	
	missing	1 (2)	3 (6)	
Education of Partner	<= Primary	6 (12)	6 (12)	.02, 1, .90
	> Primary	41 (80)	38 (75)	

	missing	4 (8)	7 (14)	

		Treatment N=51	Control N=51	Chi-square, d.f, P-value
		N (%)	N (%)	
Employment Status	Working for boss or self	19 (37)	10 (20)	4.48, 2, .11
	Going to school	9 (18)	15 (29)	
	Others	22 (43)	25 (49)	
	missing	1 (2)	1 (2)	
Income (Weekly wages)	< R 200	10 (20)	3 (6)	3.23, 1, .07 Fisher's exact p =.11
	R 200 - R 599	5 (10)	7 (14)	
	DK/missing	36 (71)	41 (80)	

Table 1b.
Demographic Characteristics of Men Participants

		Treatment (N=50) N (%)	Control (N=50) N (%)	Chi-square, d.f, P-value
Age	< 25 yrs.	22 (44)	31 (62)	3.25, 1, .07
	>= 25 yrs.	28 (56)	19 (38)	
	missing	0	0	
Education	<= Primary	5 (10)	9 (18)	1.33, 1, .25
	> Primary	44 (88)	40 (80)	
	missing	1 (2)	1 (2)	

		Treatment (N=50)	Control (N=50)	Chi-square, d.f, P-value
Length of current partnership	<=5 (Long term)	32 (64)	30 (60)	.02, 1, .89
	Other	17 (34)	15 (30)	
	missing	1 (2)	5 (10)	
Married	Yes	1 (2)	3 (6)	1.13, 1, .29
	No	49 (98)	45 (90)	
	missing	0	2 (4)	
Children	0	15 (30)	17 (34)	.33, 1, .56
	>= 1	34 (68)	30 (60)	
	missing	1 (2)	3 (6)	
Education of Partner	<= Primary	0	8 (16)	8.92, 1, .003
	> Primary	48 (96)	39 (78)	
	missing	2 (4)	3 (6)	
Employment Status	Working for boss or self	13 (26)	14 (28)	.28, 2, .87
	Going to school	10 (20)	10 (20)	
	Others	26 (52)	22 (44)	
	missing	1 (2)	4 (8)	
Income	< R 200	1 (2)	1 (2)	0, 1, .95 Fisher's p =

(Weekly wages)				1
	>= R 200	11 (22)	12 (24)	
	DK/missing	37 (74)	37 (74)	

Sexual Risk Behavior

HIV susceptibility was perceived to be fairly high among participants; more than half the women in SCIT and HIT felt at risk for HIV infection. Initiation of sexual coitus primarily occurred in the mid-to-late teens. Some, however, had begun sexual intercourse before 14 years of age.

Table 2a presents the distribution of the VEE scores at baseline (past 3 months) and post intervention (past 4 weeks) for women participants. The distribution of scores is grouped into six categories: 0, 1-10, 11-20, 21-40, 41-60, and >60.

A t-test indicated that the slight difference in the mean VEE score for the two groups at baseline was not statistically significant. At post intervention, there was a significant reduction in the absolute frequency of unprotected sex contacts reported by participants in SCIT compared with those in HIT. The mean for unprotected sex contacts in SCIT was 14.7 compared with the mean of 24.12 in HIT.[9]

The highest overall mean for risk for SCIT and HIT at both baseline and post-intervention was for vaginal sex. In SCIT and HIT, all participants reported vaginal sex occasions at baseline and post-intervention. The SCIT vaginal sex mean for risk at baseline was 18.82 compared with 17.96 for HIT. At post-intervention SCIT participants had reduced their unprotected vaginal sex contacts significantly compared with HIT. The unprotected vaginal sex contact mean for SCIT was 14.21 compared with a mean of 22.12 for HIT participants.

Sixteen percent of the 51 women in SCIT reported having had anal sex at baseline. At post-intervention only 6% reported having had anal sex. The anal sex mean for risk at post-intervention was 0.23, a more than three-fold difference compared with the anal sex mean for risk at baseline, which was 0.75. In HIT, at baseline 4% of the women reported anal sex compared with 9% at post-intervention. Thus, the scores were much higher for anal sex episodes at post-intervention compared with those at baseline. The anal sex mean for risk at baseline was 0.06 compared with a mean of 1.00 at post-intervention.

[9] These findings are highly significant with a p-value of 0.04 for a two-tailed test with a 95% C.I. of (-18.25, -.60). The confidence interval gives an estimate of the effect size which indicates that the mean VEE score for SCIT is less than the mean VEE for HIT. The difference in the mean VEE can be as low as 18 (9 risky anal or 18 risky vaginal etc.) compared to the mean VEE for HIT.

At baseline, 22% of the 51 women in SCIT reported having oral sex. At post-intervention, only 12% reported oral sex. The oral sex mean for risk at baseline was 0.16 compared with the oral sex mean at post-intervention which was 0.15. In HIT, 13% reported oral sex at baseline, compared with 9% at post-intervention. The oral sex mean for risk at baseline was 0.16 compared with 0.15 at post-intervention.

Table 2b presents the distribution of the VEE scores at baseline (past three months) and post intervention (past four weeks) for the male participants using the same procedures described above.[10]

From the t-test, there was no evidence of a statistical difference in the mean VEE score for the two groups at baseline. The mean for all unprotected sex contacts was higher for men than for women. Among the men in SCIT, the unprotected sex mean was 31.80, and in HIT the mean was 29.47. At post intervention, there was a reduction in the absolute frequency of unprotected sex contacts reported by participants in SCIT compared with those in HIT, but the difference was not statistically significant. The mean for unprotected sex contacts in SCIT was 26.28 compared with the mean of 31.62 in HIT. Although the hypothesis of no difference in means is not rejected at the 5% level of significance, the intervention was shown to have some positive effect.

Similar to the women, the men's highest overall mean for risk for SCIT and HIT at both baseline and post-intervention was for vaginal sex. The SCIT vaginal sex mean for risk at baseline was 29.12 compared with 23.52 for HIT. At post-intervention male SCIT participants had reduced their unprotected vaginal sex contacts significantly compared with HIT. The unprotected vaginal sex contact mean for SCIT men was 24.83 compared with a mean of 31.32 for HIT men. The anal sex mean for risk at baseline in SCIT was 1.34 compared with a mean of 2.96 in HIT, and the oral sex mean for risk in SCIT was 0.04 compared with 0.26 in HIT. The largest difference is sex risk reduction for SCIT compared with HIT was observed for vaginal sex. The reduction in risk for anal and oral sex was however, larger in HIT compared with SCIT.

The logistic regression analysis conducted with "high post intervention VEE score" as the dependent variable and the following categorical variables as covariates: age; number of children; alcohol user and feeling at risk for HIV infection, did not show any significant effect with regard to group or the other covariates. The odds ratio for SCIT versus HIT was .65 (.26, 1.66). For the men's data, the baseline categorical VEE was also included in the regression as a covariate. Again the group effect was not significant. The odds ratio for SCIT versus HIT was .77 (.28, 2.1). For the women, the

[10] The study attempted to assess the risk of men having sex with men. However, since the practice is taboo in Zulu culture, rather than report that they have had sex with other men, the men in the study reported that they knew of other men who engaged in this practice. Also, as the study progressed, their trust in the project staff increased as is evidenced by both by the increased reporting by the men as well as the frequency of men known to have sex with men. While the findings did not inform of the extent to which men in the study were having sex with men, it is known that this practice does exist. In addition, the use of injection drugs is a further risk factor previously unaccounted for within this population.

negative coefficient for age and number of children implied that the likelihood of a high VEE score was lower for those who were less than 25 years or had children. But the odds ratio for those women who consumed alcohol or felt at risk for HIV was larger than 1. Similar results held for men except that the odds ratio for the men who consumed alcohol or felt at risk for HIV was less than 1.

In the multiple regression, the coefficient for groups was significant for the women's data but not for the men's. This meant that for women, the mean VEE score for SCIT and HIT at post- intervention was statistically different. The mean VEE score for SCIT was 9.9 less than the mean VEE score for HIT. Age also seemed to have some effect on the mean VEE score but was not statistically significant at the .05 level of significance. In the men's data, the baseline VEE score was also used as a covariate and the coefficient for this was significant in the regression equation, thereby probably overlapping the group effect. Even though the group effect was not significant, the coefficient was negative, which meant that the mean VEE score for SCIT was less than the mean VEE score for HIT at post intervention. No other variables were seen to have a significant effect on the post intervention VEE score.

Discussion

The highly significant decrease in unprotected sex among women in SCIT at post-intervention indicates that women, if given the skills and the tools, can take steps to protect themselves from STDs/HIV. Obviously imparting these tools and skills will not come anywhere close to eliminating women's sexual oppression and exploitation, but it begins to make them feel that they can play an active role in the fight against AIDS. Also, with men, even though the decrease in unprotected sex contacts at post-intervention was not significant, the lower mean VEE score for SCIT compared with HIT at post intervention indicates that the intervention had some effect in reducing unprotected sex. The appreciable reduction in this behavior among the men in SCIT indicates that men are receptive to prevention strategies which require a decrease in unprotected sex contacts to reduce HIV infection risk.

While the risk mean for anal and oral sex was much lower than the risk mean for vaginal sex, the study findings draw attention to two issues: that oral sex and anal sex, which are taboo subjects in this population and had previously not been reported in the literature, were being practiced by men and women. The "sexual repertoire" of study participants is therefore not limited, but is in fact, quite varied. Future HIV/STD prevention intervention need to be designed with all these sex practices in mind.

HIV infection risk is higher for unprotected anal sex than it is for vaginal and oral sex. There was a substantial increase in anal sex episodes among women in HIT compared with those in SCIT at post-intervention. Although none of the anal sex contacts were protected in SCIT at post-intervention, the decrease in anal sex contacts could be interpreted as the women's attempts to reduce their risk of HIV infection by engaging in less anal sex. Similar inferences could be made about the decrease in oral sex among

SCIT women at post-intervention. No significant decrease was noted in the anal and oral sex contacts among the men in SCIT.

Table 2a
Distribution of VEE scores at baseline and post intervention for female participants

	Baseline (past 3 months)		Post Intervention (past 4 weeks)	
	Treatment (N=51)	Control (N=51)	Treatment (N=47)	Control (N=34)
VEE scores	N (%)	N (%)	N (%)	N (%)
0	1 (2)	1 (2)	9 (19)	4 (12)
1 - 10	24 (47)	21 (41)	15 (32)	9 (26)
11 - 20	6 (12)	11 (22)	8 (17)	6 (18)
21 - 40	13 (25)	14 (27)	13 (28)	10 (29)
41 - 60	3 (6)	2 (4)	2 (4)	3 (9)
> 60	4 (8)	2 (4)	0	2 (6)
Mean	20.33	18.09	14.7	24.12
Difference in means (Treatment - Control)	2.24		-9.42	
T-statistics, d.f., p-value, (95% C.I.)	.54, 100 .59 (-6.0, 10.47) Hypothesis of no difference in means is *not* rejected.		-2.13, 79 .04 (-18.25, -.60) Hypothesis of no difference in means is rejected at 5% level of significance.	
Boot-strap 95% C.I.	(-4.55, 11.25)		(-17.78, -.67)	

Table 2b.
Distribution of VEE scores at baseline and post intervention for male participants

	Baseline (past 3 months)		Post Intervention (past 4 weeks)	
	Treatment (N=50)	Control (N=50)	Treatment (N=36)	Control (N=34)
VEE scores	N (%)	N (%)	N (%)	N (%)
0	1 (2)	2 (4)	4 (11)	1 (3)
1 - 10	6 (12)	20 (40)	11 (31)	9 (26)
11 - 20	11 (22)	8 (16)	6 (17)	8 (24)
21 - 40	19 (38)	12 (24)	6 (17)	8 (24)
41 - 60	10 (20)	2 (4)	4 (11)	3 (9)
> 60	3 (6)	6 (12)	5 (14)	5 (15)
Mean	31.80	29.47	26.28	31.62
Difference in means (SCIT - HIT)	2.34		-5.33	
T-statistics, d.f., p-value, (95% C.I.)	.32, 73.5 .75 (-12.1, 16.78) Hypothesis of no difference in means is *not* rejected.		-.64, 68 .53 (-22.03, 11.37) Hypothesis of no difference in means is *not* rejected at 5% level of significance.	
Boot Strap 95% C.I.	(-10.52, 15.59)		(-20.18, 11.19)	

Use of HIV/STD Protection Methods

Table 3 compares baseline use of HIV/STD protection methods such as the male and female condom and the patentex oval by women.[11] The table also compares baseline

[11] The study also looked at use of contraceptives to protect against pregnancy. Data were similar among SCIT and HIT participants with regard to this general contraceptive history. Contraception methods other than the male and female condom and the patentex oval were reported by the women at baseline. These methods included birth control pills, IUDs, injectables withdrawal and ukusoma. Use of injectables was highest among both SCIT and

use of the male condom by men. Male condom use is subdivided between consistent condom use[12] and any condom use.

Baseline usage of all protection methods are similar for SCIT and HIT among women and men. Among women, only one woman in SCIT and none in HIT reported consistent condom use by her sexual partner. A few women in both groups reported occasional condom use by their sexual partners, and even fewer women had used the female condom or the oval in the three months prior to study. Consistent use of the male condom at baseline was non-existent among male participants in both groups. However, some men did report condom use at least once in the three months prior to study entry.

Table 3
Use of HIV/STD protection methods at baseline (past 3 months)

Women	male condom use		female condom use N (%)	oval use N (%)
	consistent use N (%)	any use N (%)		
Treatment (N=51)	1 (2)	7 (14)	4 (8)	1 (2)
Control (N=51)	0 (0)	3 (6)	1 (2)	1 (2)
Men				
Treatment (N=50)	0 (0)	7 (14)	-----	----
Control (N=50)	0 (0)	9 (18)	-----	-----

Table 4 describes the use of the same protection methods at post-intervention for women and men. For women in SCIT, an increase in the use of all protective methods

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HIT participants. Birth control pills were the next popular method of contraception. Twenty percent (n= 10) of the women in SCIT had used the birth control pill at baseline, compared with 12% (n = 6) in HIT. The IUD, withdrawal and *ukusoma* were least used among the study participants.

[12] "Consistent use" means use of a male condom at every sexual episode -- oral, anal or vaginal.

was observed. Consistent condom use by their sex partners had increased from 2% to 17%. Any use of the male condom had increased from 14% to 57%. Female condom use had increased from 8% to 28%, and finally oval use had increased from 2% to 38%.

For HIT women, while there was no observed change in consistent condom use, there was some increase in their partner's occasional use (6% to 12%). Their use of the female condom (2% to 18%) and the oval (2% to 9%) also increased. Usage of these methods was however, less than usage among SCIT women.

Table 4
Use of HIV/STD protection methods at post intervention (past 4 weeks)

Women	male condom use		female condom use N (%)	oval use N (%)
	consistent use N (%)	any use N (%)		
Treatment (N=47)	8 (17)	27 (57)	13 (28)	18 (38)
Control (N=34)	0 (0)	4 (12)	6 (18)	3 (9)
Men				
Treatment (N=36)	4 (11)	20 (56)	-----	----
Control (N=34)	1 (3)	10 (29)	-----	-----

Statistical significance was calculated for the difference between SCIT and HIT participants' use of any of the study protection methods. Table 5 compares data at baseline and post-intervention For female participants, baseline usage of the male and female condom and the patentex oval combined was similar in SCIT and HIT. In SCIT, use of any protection method increased from 16% to 72%. In HIT, use of any method also increased but not as dramatically: At baseline, use of protection methods was 8% compared with 26% at post-intervention. The difference in use of any method at post-intervention among SCIT women compared with HIT women is highly significant at <.0001, with a relative risk (RR) of 2.73 and a 95% confidence interval (C.I.) of (1.52, 4.92).

The literature on women and HIV protection methods use mentions that the introduction of a new protection method sometimes results in migration from male condom use towards the new method rather than interchangeable and/or concurrent use of the familiar method and the new method. This study revealed that among women in SCIT only one person who reported use of the male condom by her partner migrated toward using the female condom and the oval at post intervention. Within HIT, there was no migration from male condom use to any of the other methods.

Data from this study revealed that not only were women in SCIT increasingly getting their partners to use the male condom, but that they were also using the new protection methods as additional tools in their HIV/STD prevention armamentarium. In SCIT, of the 27 women whose partners had used the male condom at post-intervention, 33% reported that they had used the female condom as well. In addition, 44% of those whose partners used the male condom had also used the patentex oval. Finally, 26% had used all three methods of protection interchangeably at post intervention. Protection method usage other than the male condom was initiated by 13% of the total SCIT sample.

In HIT, of the four women whose partners had used the male condom at post intervention, 50% reported that they had used the female condom as well. None had used the patentex oval. Other protection methods were initiated in 15% of the total HIT sample.

For male participants, the data on baseline usage of the male condom in SCIT and HIT were similar. In SCIT, the proportion of men reporting condom usage increased from 14% at baseline to 56% at post-intervention. In HIT an increase was also observed between baseline and post-intervention usage of condoms: 18% used condoms at baseline compared with 29% at post- intervention. Nonetheless, the difference in condom usage between SCIT and HIT participants at post-intervention is highly significant at .03 with a RR of 1.89 and a C.I. of (1.04, 3.43).

Table 5.
Use of any study protection method

Women (male, female condom / ovule use)			Chi-sq, d.f, p-value RR, (95% C.I.)	**Men** (male condom)			Chi-sq, d.f, p-value RR, (95% C.I.)
Baseline (past 3 months)	Yes N (%)	No N (%)	1.51, 1 .22 2 (.61, 6.23)	Baseline (past 3 months)	Yes N (%)	No N (%)	.30, 1 .59 .78 (.31, 1.93)
Treatment (N=51)	8 (16)	43 (84)		Treatment (N=50)	7 (14)	43 (86)	
Control (N=51)	4 (8)	47 (92)		Control (N=50)	9 (18)	41 (82)	

Post Intervention (past 4 wks)	Yes N (%)	No N (%)	16.67, 1 <.0001 2.73 (1.52, 4.92)	Post Intervention (past 4 wks)	Yes N (%)	No N (%)	4.88, 1 .03 1.89 (1.04, 3.43)
Treatment (N=47)	34 (72)	13 (28)		Treatment (N=36)	20 (56)	16 (44)	
Control (N=34)	9 (26)	25 (74)		Control (N=34)	10 (29)	24 (71)	

Discussion

The highly significant increase in overall use of protection methods among SCIT women at post- intervention as well as the correspondingly significant increase in the use of male condoms among SCIT men indicates that the intervention had the desired effect on increasing the use of protection methods and reducing HIV infection risk. Women in SCIT were able, not only to get their sexual partners to use the male condom, but to use it consistently as well. An increased reporting of consistent condom use among SCIT participants from only 2% to 17% is no small feat. Further, the increase from 14% to 57% in any condom use by their male partners is noteworthy. Women in SCIT had also increased their use of other protection methods such as the female condom and the patentex oval.

The study findings also show a corresponding increase among men SCIT participants in their use of condoms. Men's condom use had increased from 14% to 56% at post-intervention. The increase in consistent condom use from none to 11% at post-intervention is also noteworthy and was much higher than HIT. These findings indicated that although men have been resistant in the past to the use of condoms, with a carefully designed and executed intervention, ideas and norms about condom use change.

The increase in female condom use by women in SCIT was less than the increase in use of the male condom by their sexual partners. This may relate to the fact that the female condom was a new method, and insertion required practice and skill. The contradiction is that while the female condom has been hailed as a method under the woman's control and touted therefore as something she would probably be more likely to use, women in this study seemed to prefer and were successful in negotiating use of the male condom by their partner. The male condom remained the most highly used method of protection against HIV infection.

This finding does not necessarily imply that the male condom is the preferred method of protection, but rather that women want to engage their sexual partners in issues about HIV/STD protection. The need for the female condom should not be underestimated,

as is evidenced by the 28% who used the female condom at post-intervention. The use of the patentex oval was higher than female condom use probably because the oval is easy to use. Even though this method could be used clandestinely, its use did not outweigh that of the male condom. Women study participants in general seemed to prefer using a non-surreptitious method and communicate about condom use with their partners. However, for those who cannot communicate with their sexual partners to use either the male or female condom, there is recourse to protecting oneself with a method, albeit not a highly efficacious one, such as a spermicidal barrier.

It is also of significance that women participants in SCIT did not migrating from one method to another. Not only did the intervention succeed in increasing the use of male condoms and the adoption of new methods of protection, it also led to the first time use of any protection method by some study participants. At post intervention, 14% of the study sample of women were using a new protection method other than the male condom, i.e., in the absence of the female condom and the oval, 14% fewer women would have been using any form of protection against HIV/STD infection.

Communication About Condom Use

At baseline, the data on women's communication with sex partners about condom use were similar in SCIT and HIT. Twenty percent of the women in SCIT and 16% of the women in HIT had spoken with their main sex partners about STDs/HIV and the need to use condoms. At post intervention, 32% of SCIT participants had spoken with their main sex partner about STDs/HIV and the need to use condoms compared with 29% in HIT. Although there was no significant difference in communication between SCIT and HIT women at post intervention, more SCIT women than HIT women were talking to their main partner about condoms and their role in disease prevention.

At baseline, 22% of male SCIT participants compared with 46% male of HIT participants had communicated with their main sex partner about condom use and STDs/HIV. At post intervention, 36% (n= 13) of SCIT participants compared with 41% (n= 14) of HIT participants had spoken with their main sex partners about these important topics. There was also no significant difference in communication between SCIT and HIT men at post intervention.

STD Infection and HIV Risk

At baseline, half the female study participants in both SCIT and HIT reported engaging in high risk behavior (defined by a VEE score >=15) and all were diagnosed with an STD syndrome. The study was conducted in an STD clinic which uses a syndromic method of diagnosis and treatment of patients. Three categories of STD were used - vaginal discharge, genital ulcers, and pelvic inflammatory disease (PID) - in the statistical analyses. The major STD syndrome presented in the data at baseline was vaginal discharge. About half the women were diagnosed with vaginal discharge,

about a third with genital ulcers, and a fifth with pelvic inflammatory disease (PID). No significant difference in STD type among SCIT and HIT women was found at baseline.

At post-intervention, 83% of SCIT participants did not have any STD symptoms compared with 53% among HIT participants. The relative risk of having an STD and a high VEE score for SCIT women versus HIT women was .54 (.21, 1.42). In other words, if HIV infection risk was calculated based on the presence of a STD and a high VEE score, the relative risk of HIV infection in SCIT women would be about half that of HIT women.

A higher proportion of the men compared with the women study participants engaged in high risk unprotected sex at baseline. Almost two-thirds of the men study participants in both SCIT and HIT engaged in high risk unprotected sex, and all were diagnosed with a STD syndrome. Three categories of male STD syndromes were used: urethral discharge, genital ulcers, and bubos (swellings of the testes and groin). At baseline more than half of the men presented with urethral discharge. More than a third presented with genital ulcers, and only a few presented with bubos. The differences in type of STD among SCIT and HIT men at baseline was not significant. At post-intervention, the difference in the reduction of STD symptoms in SCIT compared with HIT was not statistically significant.

Discussion

All study participants had an STD syndrome at baseline. For women, the combined proportion of STD symptomology in women (SCIT + HIT) represented about 50% of the population that had high unprotected sex scores, indicating a female population engaged in high risk sexual behavior. Among men, the combined proportion of STD symptomology (SCIT + HIT) represented an even higher proportion (63%) of the population engaging in high risk sexual behavior. These data alone justify conducting this intervention with this population.

The use of a biological measure such as STD treated or cured would have been a useful indicator of the success of the intervention. Since the study clinic uses a syndromic method of diagnosis and treatment of patients, the closest measure obtained for intervention effect on STDs was to assess symptomology difference at post intervention. For example, if a patient was seen with ulcers at baseline, a clinical exam was conducted at post-intervention again to assess whether the ulcers had healed and/or whether a new symptom had developed. Less symptomology at post intervention was observed in both women and men participants in SCIT compared with HIT. Since the reduction in unprotected sex and increase in the use of barrier methods among SCIT women was statistically significant at post intervention, the reduction in symptomology seems to be a logical by-product of the decrease in sex risk behavior. However, since many STDs in women are asymptomatic, the reduction in symptomology cannot necessarily be implied as a reduction in STDs. Also the time period of four weeks is too short to determine any appreciable change in STD status.

For men in SCIT, there was an appreciable albeit not statistically significant decrease in unprotected sex at post intervention, and a statistically significant increase in condom use which also could have led to the reduction in symptomology among these participants. The combination of this intervention with a STD treatment control program with the necessary laboratory facilities, could have important implications for future STD/HIV infection prevention programs.

- **Number of sexual partners**

The women in both SCIT and HIT reported few sexual partners. At baseline, women in SCIT reported an average of 1.37 sexual partners in the three-month period prior to study entry, while women in HIT reported 1.53. There was no significant difference in the average number of sexual partners for both SCIT and HIT (1.19 vs. 1.15 respectively) at post-intervention.

At baseline most men reported multiple sexual partners -- an average of more than two (SCIT = 2.56, HIT = 2.86). The same trend continued at post-intervention with a slight shift in patterns -- men in both groups shifted from multiple partners to one partner. Whereas, fewer men in SCIT reported having two partners, fewer men in HIT reported having three partners.

Tables 6a and b present data on the type of partners at baseline and post-intervention. In SCIT, all female participants reported having at least one steady partner. Twenty-five percent also reported having had at least one casual sexual partner, while 2% reported having a "one-time" partner. In HIT, 98% reported having at least one steady partner, 24% a casual partner concurrently, and 6% a "one-time" sexual partner.

Men reported more casual and "one-time" sex partnerships. In SCIT, 94% reported having a steady partner, 62% reported casual partners concurrently and 20% reported all three partnerships concurrently. In HIT, 78% have a steady, 72% casual and 32% one-time sex partners.

Table 6a.
Types of partners at baseline

	SCIT		HIT	
Type of partners	Women	Men	Women	Men
Steady	51 (100)	47 (94)	50 (98)	39 (78)
Casual	13 (25)	31 (62)	12 (24)	36 (72)
One Time	1 (2)	10(20)	3 (6)	16(32)

	SCIT		HIT	
Total	51	50	51	50

Table 6b presents the same partner data at post-intervention. Fewer female SCIT participants reported having casual sexual partners. Whereas 25% reported casual sexual partners at baseline, only 17% reported a casual sexual partner and none had a "one-time" sexual partner at post- intervention. They had migrated towards main sexual partner relationships. Fewer female participants in HIT also reported having casual sexual partners. Only 9% reported having a casual sexual partner and only 3% reported having a "one-time" sexual partner at post intervention.

A smaller proportion of male SCIT participants reported one-time sexual partners. Whereas 20% reported one-time sexual partners at baseline, 14% reported a concurrent one-time sex partnerships. There was no migration towards steady partnerships as was observed among SCIT women. Fewer participants in HIT reported concurrent casual and one-time sex partnerships and it appears that hey had migrated towards steady relationships.

Table 6b.
Types of partners at post intervention

	Treatment by number of subjects		Control by number of subjects	
Type of partners	Women	Men	Women	Men
Steady	46 (98)	34 (94)	33 (97)	29 (85)
Casual	8 (17)	24 (67)	3 (9)	21(62)
One Time	0 (0)	5 (14)	1 (3)	9 (26)
Total	47	36	34	34

HIV/STD knowledge among women and men participants

Comparison of data on HIV/STD knowledge of female and male participants revealed that the control and treatment groups were similar at baseline. Knowledge in general was high, with information regarding HIV/STDs and maternal-fetal transmission highest, followed by knowledge that having an STD increased HIV infection risk. Knowledge was also fairly high regarding untreated STDs and infertility. Changes in knowledge at

post-intervention were not significant for any of the variables in SCIT and HIT, for women and men.

Violence and Sexual Relationships

Violence in sexual relationships was explored in this study. At baseline, in both SCIT and HIT, almost half the female participants (43% and 45% respectively) reported that they had been hit or had been threatened with physical violence by their main sexual partner during the three months prior to the study. At post-intervention, there was no significant difference in both SCIT and HIT in level of abuse albeit there was a reduction in reported abuse by the main physical partner in both groups over the four-week period. At post-intervention, 32% in SCIT reported that they were abused by their sexual partner in the past 4 weeks, whereas in HIT 35% reported physical abuse by their main sexual partner.

At baseline, about a quarter of the men (SCIT = 24%, HIT = 16%) reported that they had physically assaulted their sexual partner. Although fewer participants in the treatment group reported physically assaulting their sexual partner at post-intervention, the difference was not significant between treatment and control participants. At post intervention, 19% treatment participants reported that they had physically assaulted their sexual partner in the past four weeks, compared with 15% in the control group.

Violence is endemic in the KwaMashu community and seems to permeate every aspect of community life. Sexual relationships are not exempt from this violence, and since women are more vulnerable, violence was reported more by the women than by the men. Although almost half the women reported being physically abused by their male sexual partners, this variable did not have an appreciable effect on unprotected sex when controlled for in the multiple regression. Thus violence in sexual relationships did not seem to be a deterrent to reducing unprotected sex and increasing the use of protection methods by women in SCIT at post-intervention.

HIV Testing among Women and Men Participants

The need to have children was identified in the formative research phase as a major deterrent to using condoms. In designing the intervention, sessions for women and men focused on HIV testing to ascertain HIV status before having unprotected sex when planning to have a baby.

Data the women reveal that at baseline the number of women who had been tested for HIV was similar. A quarter of the sample (SCIT = 27%, HIT = 25%) had taken the test some time in the past. At post intervention, while the difference was not statistically significant, more women in SCIT (43%) than in HIT (35%) had taken the HIV test. There was in an increase in new HIV test takers at post-intervention. Of those who had changed their responses from “no” at baseline to “yes” at post-intervention (the newly tested), 23% (n= 11) were in SCIT and 24% (n= 8) were in HIT.

At baseline, HIV testing was also similar for men in both groups (SCIT = 24%, HIT = 36%), and the proportion increased: Almost half (SCIT = 42%, HIT = 47%) reported that they had taken the HIV test at post-intervention. One-third (n= 12) of the new HIV test takers were in SCIT at post- intervention compared with 24% (n= 8) for HIT.

Session Attendance and Study Outcome

More than two-thirds of the SCIT participants attended three or more sessions. Attrition was generally lower in SCIT compared with HIT for both women and men. The least loss at post- intervention was, however, among women SCIT participants. In HIT attrition was the same for women and men. A possible reason for loss of control participants compared with experimental participants was the minimal session contact with the former participants. Although regular phone contact was kept with these participants, they may have been less invested in the project than SCIT participants. The number of intervention sessions attended by participants showed only a small positive correlation (.06) with the VEE score for the men. Since this correlation was not statistically significant, no conclusions can be drawn about the relationship between the number of sessions attended and the outcome variable.

CONCLUSION

The study has indicated that it is feasible to conduct both formative and intervention research on sex risk behavior in an STD clinic setting in KwaZulu Natal. It has also indicated that study participants, if fully informed about the study and given the necessary respect, will give consent to participate and answer the most delicate of questions. Not only was it feasible to ask women and men intimate and personal questions about their sexual behavior and get responses, but they were willing to candidly discuss sexual behaviors that put them at increased risk for HIV transmission. Feasibility was enhanced through the careful screening, selection and training of interviewers who belonged to the same ethnic group as the study participants. Incorporating the input of the interviewers engendered an interview atmosphere in which the questions could be asked in such a way that they did not appear offensive or culturally insensitive. Care regarding the screening, selection and training of group facilitators, who were also of the same ethnicity as study participants also enhanced study feasibility. Group facilitators were able to conduct the sessions following the manual and maintaining a high degree of professionalism and empathy for the participants involved in the study. Clinic staff, too, were willing to cooperate and give the needed assistance because they were included in the design of the study and did not experience any work overload by the introduction of the intervention into the clinic setting.

The highly significant reduction in unprotected sex among women in SCIT at post-intervention compared with those in HIT indicates that the intervention was successful in terms of reducing sex risk behavior among women. Men, too, were able to respond positively to an intervention designed to reduce high risk sex behavior as was

evidenced by the reduction in unprotected sex among men participants in SCIT at post-intervention, even though the findings were not statistically significant. Further research however needs to be conducted to obtain information about men who have sex with men. The topic is obviously still a very sensitive one and may be better served by another research design.

While some studies on the sexual behavior of Africans have generally described their sexual repertoire as "limited," this study revealed that the sexual repertoire of the participants in this study is quite varied. The data indicated that while vaginal sex is the most common sexual practice, other sexual practices such as anal sex and oral sex do occur, although the figures reported for both practices are too small to be analyzed in any meaningful way. Also, contrary to popular conceptions that discussion of anal sex in African culture taboo, this study revealed that one can ask questions about anal sex and that persons will report on some of these practices if the right interview conditions exist. Most importantly, this study revealed that even the most oppressed of African society - women - given the right study conditions, will report on issues such as sex in general, including anal sex.

The intervention was highly successful in increasing the use of protection methods such as the male and female condom and the patentex oval among women in SCIT and the use of the male condom among men in SCIT. Not only was there a significant increase in method use by current users, but participants who had never used any method at baseline had begun to use some method at post-intervention for both women and men in SCIT. In addition, women participants in SCIT were not "method shopping," i.e., dropping one method when a new method was introduced, but instead added the new methods to their HIV/STD protection armamentarium.

The increased use of condoms at post intervention among women and men study participants in SCIT for vaginal sex but not for anal and oral sex among men could possibly be attributed to the fact that the condom marketing campaign in South Africa has focused on condom use and sex in general. In the mind of the public, and perhaps particularly in the mind of many men, sex refers to vaginal sex specifically. Protective behavior, therefore, may be targeted towards vaginal sex only. This aspect, however, is the premise for another study and cannot be discussed in depth in this study. Since the sex dynamics for anal sex are vastly different from those for vaginal sex, the exploration of these would also require another study. In addition, the dynamics for oral sex, both fellatio and cunnilingus are different from those of vaginal sex, and the use of condoms and dental dams for this sexual practice are also the domain of an independent study. Often for both anal and oral sex, the man initiates and takes control of the encounter, whereas with vaginal sex, while the male partner often initiates and largely controls the encounter, the woman is more actively involved in both the initiation of the encounter and the decision about the use of protection.

The lower risk index for unprotected sex and the increased proportion of barrier methods used among women and men SCIT participants indicated that participants can

and did benefit from participation in a cognitive behavioral skills-building intervention. The first session of this four- session intervention focused specifically on the use of protective barrier methods. The second session dealt with issues such as asking the sexual partner to use protection and the last session dealt with issues such as violent or negative reactions to requests for condom use. Participants in HIT did not receive this intervention, and the results at post-intervention seem to indicate this deficiency.

Further studies may be needed to verify the preferred partner for condom use. Since this study is the first to find that women prefer to ask their main partner rather than a casual sexual partner to use condoms, if other studies with this population confirm these findings, condom use between main sexual partners may increase if the barrier towards such use is less than currently perceived.

Although STD infection could not be used as a biological outcome in this study, some information was obtained at post-intervention regarding the potential of the intervention to reduce symptomology that SCIT participants presented with at baseline. SCIT participants did not evidence symptoms of a new infection at post-intervention. In the absence of accurate laboratory data, no interpretation can be made of the treatment or cure of the STD presented at baseline. The confirmation by laboratory data that the reduced symptomolgy meant reduced STD infection would have greatly enhanced the study findings. Further research studies that include this intervention with laboratory testing procedures for STDs will have a great impact on assessing the reduction in the probability of HIV infection.

Condom use strategies have often come into conflict with women's and men's desires to have children. The strategy adopted in this study to accommodate this need within the realm of HIV testing and condom use seems to have had some impact on both women and men as was evidenced by the increased HIV testing reported at post-intervention by SCIT participants.

The study seems to have had less success among men in particular in reducing the number of sexual partners. Women seemed to accept that men had numerous partners, and men seemed to regard numerous partners as part of the cultural norm. This intervention, however, did not claim to attempt to change cultural norms, nor would a four-session intervention have made this possible.

While the study findings cannot be generalized to all women and men, they have relevance for STD clinic attendees in KwaMashu, KwaZulu Natal. While women in African society might be oppressed economically, politically and sexually, given the skills, they are able to bring about some changes in their sexual encounters and reduce their risk for STD/HIV infection. Obviously much more needs to be done to improve the status of women, but the skills learned in this intervention begin to place some control in their hands and alter the course of events which might lead to infection with another STD including HIV. Men too, given the right conditions and participation in an

intervention that deals with issues such as protecting themselves and their loved ones, will increase their use of condoms and decrease their unprotected sex contacts.

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